E-MAIL RESPONSE SYSTEM

David Findley
Karthik Kannan
Srinivas Cherukuri
Robert Meyer
Amy Hicks
Benjamin Droney
Ying Ma

FIELD OF THE DISCLOSURE

[0001] The present disclosure relates generally to an e-mail response system.

BACKGROUND

[0002] In today's environment businesses are often required to respond to a large volume of e-mails and servicing customers utilizing e-mail has become an important part of customer service. E-mail response systems can be specialized computers that are configured to process and recognize text within an e-mail and may also take action or carry out further processes. A goal of an e-mail response system is to determine why a customer is e-mailing a service center.

[0003] E-mail response systems may be required to handle a huge volume of e-mails and, even if a small percentage are not appropriately responded to or inefficiently handled, the costs associated with inefficient administration of e-mails is significant.

[0004] Current speech e-mail response systems operate utilizing a library of predetermined textual strings and compare incoming text within e-mails to try to understand an intent of the e-mailer and provide an appropriate response.

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[0006] The textual model assigns probabilities to each of the responses using rules and other criteria. Often, an e-mail response will misinterpret the text and provide or suggest a response to the e-mail that is wholly inappropriate. Accordingly, there is a need for an improved e-mail response system.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 illustrates a simplified configuration of an e-mail system;

[0008] FIG. 2 is a flow diagram that illustrates a method of processing and routing e-mails;

[0009] FIG. 3 is a table that depicts e-mail text and mapped recognized terms; and

[0010] FIG. 4 is a routing table illustrating various services and recognized action words associated with the services.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to FIG.1, an illustrated system 100 including an email processing system 118 is depicted. The system 100 includes a communication network 116, an email service support system 118 including one or more interactive email response systems, and a plurality of potential destinations for the email. Illustrated destinations include a billing department 120, a balance information department 122, technical support department 124, available services department 126, and new service department 128. Each department 120-128 is capable of providing different answers to different questions provided by client/customer 110, 112, and 114. Emails can also be routed to email administrator 130. An illustrative embodiment of an email processing system 118 may be an email server having a plurality of terminals monitored by agents, such as the departments 120-128 and email administrator 130. The communication network 116 may be the Internet. Additionally, while only a single email administrator 130 is illustrated, it should be understood that a plurality of different administrators or types of administrators may be coupled to the email processing system 118. In addition to the departments 12-

128 illustrated, additional departments could be utilized or a variety of departments could be utilized to service incoming emails. In a particular embodiment, the emails going through the email processing system may have attachments to provide audio or voice messages to the departments 120-128.

The email processing system 118 may include a processor 142, business rules table 144, text table 140, and memory 143. When a client or customer 110-114 emails a question to the email processing system 118 via the communication network 116, the email processing system can utilize a text table 140 to determine a routing destination for the email. The routing destinations can be the departments 120-130. After an email is effectively routed to the appropriate department by the processor and the text table 140 based on the content of the email, the billing department can be provided with a predetermined reply to the email. In a particular embodiment, if the email processing system can understand the email and provide a reply to the email that has a high confidence level, the email processing system can automatically send an appropriate answer to the client/ customer question via communication network 116. When a confidence level is average to low, the email can be forwarded to the appropriate department where a predetermined list of responses can be provided to the department. The agent who works for the department (not shown) can "point-and-click" a plausible solution to the email. The selectable solutions for the departments can be provided by the business rules table 144. The business rules table 144 can provide selectable responses to the departments based on geographic information and known customer information, such that the selectable responses have a very high probability of being an appropriate response. When an email is received by an agent at one of the illustrated departments, the agent may reply to the email requesting more information or requesting clarification. When the reply to the request for additional information is received, the email processing system may appropriately provide a response or the email may again be routed to a department as shown by departments 120-130. In the event that the email processing system 118 cannot route to an appropriate department, it routes to the email administrator 130 who can further clarify the email and possibly send it to one of the departments 120-

128. Additionally, the email administrator 130 can reply to the client/customer 110 e-mail in a reply e-mail request for additional information.

Referring to FIG. 2, a method of operation that may be used in connection with the system 100 of FIG. 1 is illustrated. The method starts at 200 and proceeds to step 202 where an email is received. At step 204, the received email is compared to text in a text library to determine an appropriate response to an email. Based on the step of comparing, an automatic reply email may be sent to the client, or an appropriate routing of the email to a particular department may be provided. At step 206, the processor can create a list of most probable responses to the received email. Next, based on business rules, a filter can be employed to filter a list of most probable responses based on information known about an customer such as the region where the customer lives or the customer information in the customer's account. At step 210, it is determined whether the confidence level exceeds a predetermined level. If the confidence level does exceed a predetermined level, the system will automatically respond to the email, as shown at step 214. If the confidence level of the auto-email response does not exceed a predetermined level, the system provides an agent with a list of probable email responses in step 212. The agent can then respond to the email in step 214. The process ends at step 216.

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[0015] A system and method are disclosed for processing incoming e-mails. The word strings of the e-mails are compared to recognized to words or word strings to interpret the intent of the e-mail. When text is recognized a confidence value is assigned to an action that can be taken o the e-mail. The confidence level represents a probability that the text of the e-mail accurately represent the purpose or intent of the caller. If the recognition function has a high confidence level the system may auto reply to the received e-mail. If

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the confidence level is lower the e-mail may be routed to an agent in a particular department based on the similarity of the received text to the text in the predetermined text library. A routing destination for the e-mail can be determined based on a routing table. .

[0016] Referring back to FIG. 4, as an example, it is beneficial to convert word strings or text such as "I want to have" to actions such as "get." This substantially reduces the size of the routing table. When a new department is created for processing certain e-mails, a single entry in the routing table may accommodate the change. In accordance with the present system, dozens of differently expressed or differently written requests that have the same intent can be converted to a single detected noun verb combination and routed to a department based on the recognized text.

[0017] The misrouted or mis-answered e-mails can be stored and the system can be improved based on the mis-answered and misrouted e-mails. Further, improper and informal sentences as well as slang can be connected to a noun-verb pair that may not bear textual resemblance to the words written by the e-mailer. The lookup table may be updated easily, leading to a low cost of system maintenance.

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[0019] The above-disclosed subject matter is to be considered illustrative, and not restrictive, and the appended claims are intended to cover all such modifications, enhancements, and other embodiments that fall within the true spirit and scope of the present invention. Thus, to the maximum extent allowed by law, the scope of the present invention is to be determined by the broadest permissible interpretation of the following claims and their equivalents, and shall not be restricted or limited by the foregoing detailed description.